INTRODUCTION

- Thyroid cancer is the most common endocrine neoplasm worldwide, representing 1.7% of new cancer diagnoses and 0.5% of cancer deaths each year (Baldini et al.)
- The majority of thyroid cancers are primary (originating within the gland itself), are well-differentiated, and are derived from follicular epithelial cells
- Papillary thyroid cancer is the most common subtype
  - 70-80% of all thyroid cancers
  - Peak incidence in women of child-bearing age
  - Generally indolent behavior, excellent prognosis with total thyroidectomy
- 30-90% of patients exhibit recurrent or persistent metastasis to the cervical lymph nodes (Torres et al.) and 20% of cases present with occult cancer that is only identifiable in the nodes without evidence of a primary tumor (Cunha et al.)
- It is important to detect local lymph node involvement in order to determine appropriate surgical management, clinical follow-up, and prognosis (Baldini et al.)

Evaluation for lymph node involvement

- Gold standard: fine needle aspiration + cytology (FNAC)
- Diagnostic pitfalls:
  - Cystic change – very common in head and neck cancers, especially papillary thyroid cancer (Ustun et al.)
  - Micrometastases
- Thyroglobulin washing test (TgW)
  - Syringe used for FNAC flushed with normal saline
  - Tg level in washout fluid measured using chemiluminescent assay
  - Adding TgW to FNAC increases sensitivity and specificity to nearly 100% (Suh et al.)

OBJECTIVE:

To determine how thyroglobulin wash testing contributed to the management of thyroid cancer patients with positive/suspicious and negative/non-diagnostic cytology.

METHODS

- All recent cases of thyroid bed and lymph node FNAC with simultaneous TgW testing in the Cytology Department of TJUH were retrospectively reviewed (N= 104)
- The cytological diagnosis was confirmed and compared with the TgW test results; cases with surgical follow-up and histological diagnosis were identified and also reviewed
- The selected cases were divided in two groups depending on cytological diagnosis: positive/suspicious group and negative/non-diagnostic group

RESULTS

Table 1: Results of thyroglobulin wash testing

<table>
<thead>
<tr>
<th>Thyroglobulin Level</th>
<th>Positive or suspicious FNAC (N=30)</th>
<th>Negative or non-diagnostic FNAC (N=74)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated (&gt;1 ng/mL)</td>
<td>22 (73%)</td>
<td>4 (5%)</td>
</tr>
<tr>
<td>Negative (&lt;1 ng/mL)</td>
<td>8 (27%)</td>
<td>70 (95%)</td>
</tr>
</tbody>
</table>

Table 2: Diagnostic outcomes on follow-up for samples with discordant TgW/FNAC results

<table>
<thead>
<tr>
<th>TC positive</th>
<th>TC negative</th>
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<tbody>
<tr>
<td>7</td>
<td>1</td>
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CONCLUSIONS

- Diagnosing lymph node involvement in well-differentiated thyroid cancer by FNAC alone can be challenging and yield non-diagnostic specimens
- Measurement of thyroglobulin levels is important for the diagnosis and management of metastatic or recurrent thyroid carcinoma in patients with negative/non-diagnostic FNAC
- Patients with positive or suspicious findings on FNAC generally undergo neck dissection regardless of TgW test results
- Our data supports the recommendation that reflex TgW testing be reserved for cases with negative or non-diagnostic cytology as a cost-effective and time-saving measure

REFERENCES